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WEST INDIAN AIR TRANSPORT COMMITTEE

Report *on the Opportunities* for Civil Air Transport in the West Indies

*Presented by the Secretary of State
for Air to Parliament by
Command of His Majesty
September 1927*

LONDON:

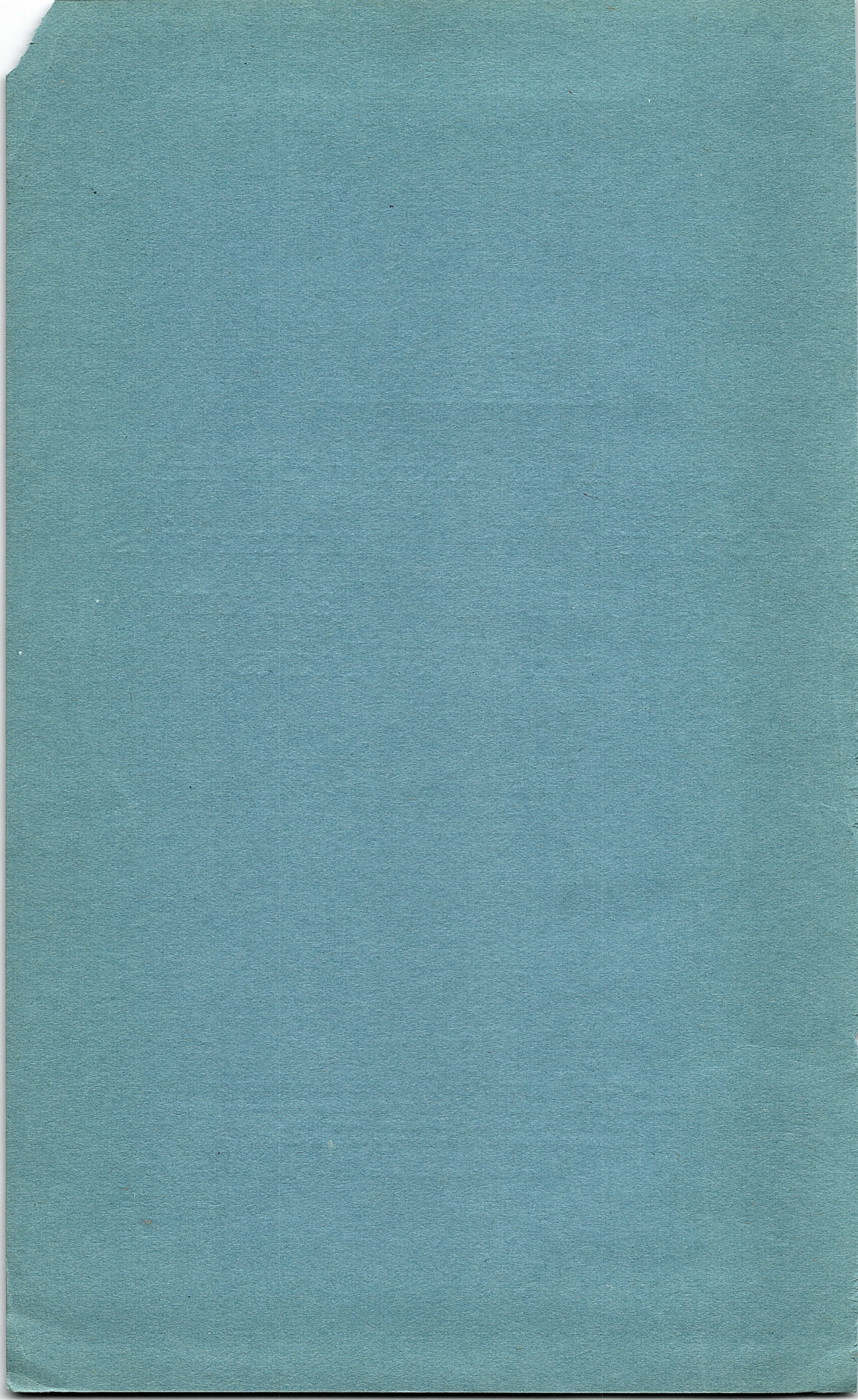
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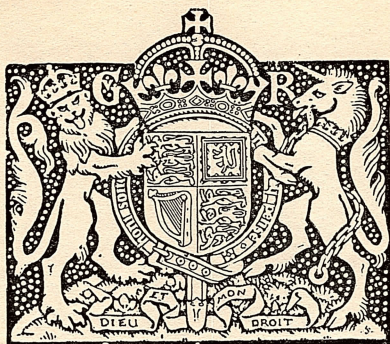
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WEST INDIAN AIR TRANSPORT COMMITTEE.

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K.C.B., A.F.C. (Chairman).	
Mr. F. G. L. Bertram, C.B.E. „ „
Lieut.-Colonel I. A. E. Edwards, C.M.G. „ „
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Mr. Algernon Aspinall, C.M.G., C.B.E.	.. West India Committee.
Lieut.-Colonel I. B. Davson, O.B.E., T.D.	West Indian Aviation Committee.
Mr. W. W. Burkett, M.C. (Secretary)	.. Air Ministry.

TERMS OF REFERENCE.

“ To consider generally what opportunities exist for the operation of civil air transport in the neighbourhood of the West Indies.”

[No expenditure has been incurred in connection with this Report other than the cost of printing and publishing, which is estimated by the Stationery Office at £25 18s. 3d.]

PREFATORY NOTE BY THE SECRETARY OF STATE FOR AIR.

IN view of the various proposals, both British and foreign, which have from time to time been put forward for the operation of civil air services in or over the British West Indies and also in view of the success which has attended the operations in Colombia of the Sociedad Colombo-Alemana de Transportes Aereos (S.C.A.D.T.A.) who now contemplate an extension of their services, it seemed very desirable that the possibilities of Air Transport in the British West Indies should be closely investigated.

In consultation with the Secretary of State for the Colonies, I therefore appointed the West Indian Air Transport Committee to consider this question. Their Report, set out below, constitutes a valuable survey of the opportunities which exist for civil aviation in these colonies, and the establishment at an early date of air services on the lines they recommend would undoubtedly be most welcome.

Certain passages in the Report, as presented, contained estimates of the subsidies which such services might require from public funds, and of the extent to which the administrations concerned might provide them. It has seemed wiser, in publishing the Report, to omit passages which relate to hypothetical Government action and necessarily raise somewhat wide political issues.

(Signed) SAMUEL HOARE.

Air Ministry,

4th October, 1927.

WEST INDIAN AIR TRANSPORT COMMITTEE.

To :—

*Lieut.-Colonel the Right Honourable
Sir Samuel J. G. Hoare, Bart., C.M.G., M.P.,
Secretary of State for Air.*

Sir,

We have the honour to present the following report on the subject which you referred to us for examination under the terms of reference set out above.

1. INTRODUCTION.

We intend the term "West Indies," when used in this Report, to imply the British West Indian Islands, the Bahamas and British Guiana, unless otherwise stated. We regret that, owing to the comparatively isolated position of British Honduras, it has not been practicable to include this Colony in our proposals.

For the purpose of our Report we have confined our enquiries entirely to the aspect of operations by heavier-than-air machines.

At the outset it may be stated that we are impressed with the many advantages the West Indies would derive from air transport and with the desirability, both from the Imperial and commercial standpoints, of establishing British air services there as soon as reasonably possible.

Extending from British Guiana on the mainland in a chain of islands of roughly 1,800 miles in length and separated in some cases by considerable distances, the West Indies are in a position to derive the maximum benefit from the rapid transport facilities and the speeding up of inter-island communications which regular air services would afford, while from the technical point of view the operation there of sea-going aircraft would, in general, present no serious practical difficulties.

We understand that several applications have recently been made by foreign undertakings for permission to carry out aerial operations in the West Indies and we are convinced that it will be difficult, even if desirable, to prevent foreign penetration in such enterprises, unless British interests are shortly established in the field.

Our examination of the question has, however, revealed that the main obstacles to be overcome in the establishment of efficient air services in the West Indies are concerned with finance and the difficulties of assuring an adequate revenue, without which sufficient capital will not be forthcoming for any scheme put forward. These difficulties are discussed in detail in connection with the respective proposals described later in this Report.

We have been favoured with suggestions from certain Governors of West Indian Colonies, whose attention was drawn by the Colonial Office to the purpose of this Committee. These suggestions were considered in connection with the relevant sections of this report, but

mention may in particular be made of a report (reproduced as Appendix D hereto) of a special Committee which the Governor of Jamaica appointed to consider the question in its application to that Colony.

2. PAST AND PRESENT AIR OPERATIONS IN THE WEST INDIES.

In the first place it seems desirable to review briefly the attempts which have already been, or are now being, made to establish air services in the West Indies.

In October, 1919, the Bermuda and West Atlantic Aviation Company commenced pleasure flying operations in Bermuda. A local Act conferred on them the sole right for a period of five years to establish and maintain aircraft bases in the Island and exempted their material from import duty for a similar period. The financial results of the venture, depending on this form of commercial flying, were disappointing and the Company, therefore, formulated proposals for extending their operations to include a Volunteer Air Force and Reserve training scheme to be supported by a subsidy from the Imperial Government. These proposals were considered by the Overseas Defence Committee, but were rejected on the grounds that a subsidy from Imperial funds was not warranted from the point of view of defence.

In 1921 the Company turned their attention to the Bahamas and proposed to the local Government a mail contract for a service between Nassau (New Providence) and Miami (Florida). The Bahamas legislature passed the Air Service Act, 1921, providing for the payment to the Company of a subsidy of £5,000 per annum for a three-year contract and conferring rights on them similar to those granted in Bermuda. The grant of a monopoly for the carriage of passengers by air was refused, in view of the terms of Articles 16 and 17 of the International Air Convention and the possibility of retaliatory restrictions being applied elsewhere against British aircraft by other States, parties to the Convention.

Investigation of the estimates for the Nassau-Miami service showed, however, that, even with the subsidy contemplated, the operations could not be carried on at a profit with the aircraft available at that time; in fact, it appeared then that an air service in the Bahamas confined to one branch of work could not be successful. Application to the Air Ministry by the Company, backed up by a resolution of the House of Assembly, for a subsidy from Imperial funds towards the support of the Nassau-Miami service was refused on the ground that the proposed scheme was unlikely to become self-supporting within a reasonable space of time.

The Company had in the meantime carried out a survey of the Orinoco Delta, constructed a photographic mosaic map of Georgetown and made a valuable reconnaissance into the interior of British Guiana up the Essequibo River; but, following on an unsuccessful

tender for the carriage of mails on the St. Kitts-Georgetown route and the refusal of Imperial financial support, they suspended their activities.

Several proposals for the establishment of air services in British Guiana have from time to time been submitted. In particular, the West Indian Aerial Transport Company, Ltd., went to the length of sending out a representative (Major H. Hemming, A.F.C.) to British Guiana to investigate local conditions in connection with their scheme to operate a service between Georgetown and the diamond fields inland. In the course of this investigation a reconnaissance of some 250 miles of the Mazaruni River was carried out, a map of certain previously uncharted sections of the River was made and a number of suitable operating sites for seaplanes was selected. The resulting proposals of the Company contemplated financial assistance from the local Government in the form of a subsidy of £5,000 per annum and a guarantee of 6 per cent. dividend on £30,000 capital for a service to be operated with three machines (D.H.50 seaplanes). The Air Council could not endorse the proposals in default of information as to how the capital was to be raised and the scheme has not matured.

The Real Daylight Balata Estates, Ltd., have recently operated with success a seaplane between Georgetown and Apoteri on the Rupununi River for ambulance and other private purposes of the Company.

Certain American companies with bases in Florida have since 1919 operated intermittent pleasure trips to Nassau and Bimini during the season. Proposals have also been put forward by the Sociedad Colombo-Alemana de Transportes Aereos to include Trinidad in the itinerary of an air service planned to be operated from Colon to Barranquilla and Curaçao and along the coast of Venezuela.

3. WEST INDIES SERVICE.

It seemed to us desirable as a preliminary to examine the possibilities of a service which would cover the whole of the West Indies. The advantages of such a service would be considerable. It would provide regular and rapid transport between islands where means of communication are now either non-existent or intermittent and so tend to draw closer the bonds of common interests. It would in some cases effect a saving of a fortnight on mails to and from Europe and would facilitate administration of the islands of the Lesser Antilles. It would enable operations subsidiary to the air service to be undertaken to the advantage of the Colonies at comparatively small additional cost, in particular, air surveys, which in the present backward state of the trigonometrical and topographical surveys of most of the West Indian Islands would be of great value. Schemes for a weekly service in each direction between British Guiana (Georgetown) and New Providence (Nassau) were accordingly considered. The route contemplated was :—British Guiana—Trinidad—the Windward Islands—Barbados—Martinique—the Leeward

Islands—Porto Rico—San Domingo—Haiti—Jamaica—Cuba—Florida—New Providence (Bahamas).

It was found that, if a small machine of the D.H.50 seaplane type with accommodation for three or four passengers were to be employed, the total cost per passenger mile, even with a full load, would be so high as to necessitate prohibitive fares.

The employment of a machine with a capacity for twenty passengers would, however, be more economical, provided sufficient traffic were available, and, in view of the difficulties and expense connected with the salvage of damaged aircraft, the employment of three-engined aircraft would be most desirable in order to eliminate forced landings.

Estimates based on operations with a machine of this type showed that with a 50 per cent. load the total cost per passenger mile would be approximately $10\frac{1}{2}d.$, which is, for instance, equivalent to a fare of £24 for a single journey from Trinidad to St. Kitts. The saving in time on this journey would be seven days.

Our discussions have made it clear that there would be in the early years no possibility of a load of ten passengers being realised over the whole route on a regular weekly service at such fares. Even a load of five passengers would be uncertain, by reason of the comparatively small size and population of the islands to which the additional facilities would afford the most obvious advantages.

The carriage of mails by air is more lucrative bulk for bulk than passenger traffic. The Air Mails Committee, who examined the possibility of air mails in the West Indies, gave it, however, as their opinion that the smallness of the mails, coupled with the relatively high cost of transport, makes it impracticable in present conditions to regard the carriage of mails as anything more than a subsidiary function of an air service, no matter how much acceleration may be offered.

Even if more frequent opportunities of communication enabled the Governments concerned to effect economies in administrative expenses, it is unlikely that any significant revenue would thereby accrue to the operating service.

We consider that operations with three-engined aircraft offer little prospect of commercial success, if there is no likelihood of the average load exceeding five passengers. In these circumstances we estimate that a subsidy of £90,000 per annum would be necessary to enable the service to be maintained. We are assured that there is no possibility of a subsidy of this magnitude being forthcoming from local sources, and we hesitate to recommend that such a large subsidy from Imperial Funds should be devoted to the establishment of this particular service.

The conclusion forced on us, therefore, is that a scheme for a regular air service throughout the West Indies cannot for the present be entertained.

4. LOCAL OPPORTUNITIES.

The practical solution of the problem appears to be to establish first of all local services on those sections which seem to offer the best chance of early commercial success with the hope that, when their value has been demonstrated, the scope of the operations will be gradually extended to link up ultimately the whole of the West Indies. This conclusion accords with the suggestion of the West Indian Aviation Committee on the subject. We proceeded to examine the question in this light and to consider the opportunities for air services in the Colonies mentioned below.

(a) BAHAMAS.

The abortive proposals made in 1921 for an air service between Nassau and Miami have been described earlier. Owing to the relatively short distance (190 miles), an air service on this route to be successful would require to be operated intensively, i.e., two journeys in each direction per day. Available traffic would be insufficient to warrant this, except possibly during the height of the tourist season.

The amount of traffic between the islands of the Group would also be insufficient to provide adequate loads for a regular service.

In these circumstances we consider that the success of an air service in the Bahamas, except as an eventual and perhaps seasonal extension of a well-established service elsewhere, is problematical without the assistance of a subsidy.

There are, however, opportunities in the Bahamas for the advantageous employment of aircraft in directions which could be made subsidiary to an air transport service.

Aircraft would undoubtedly facilitate the administration of the "Out Islands." The difficulties at present were exemplified recently, when the Officer Administering the Government was compelled to make an urgent application for the use of one of His Majesty's sloops, owing to his inability otherwise to reach the outlying islands devastated by the late cyclone.

Again, the administration and inspection of the extensive light-house service, which at present offer considerable difficulties owing to the large area covered by the Group, would be greatly facilitated by the use of aircraft. They could also be used to great advantage for the purpose of a combined topographic and hydrographic survey of the islands and reefs, an undertaking which is urgently required.

If contracts were placed with a company for these subsidiary operations, the assured revenue which would accrue therefrom would probably enable them to exploit the possibilities of an air service on the Nassau—Miami route during the tourist season.

We recommend that the authorities concerned should give their consideration to the very considerable advantages to be derived from the employment of aircraft in these directions

(b) JAMAICA.

The Committee appointed by the Governor of Jamaica have, as will be seen from Appendix D hereto, reached the conclusion that they cannot at present recommend the establishment of an air service for Jamaica. We do not dissent from their view, having regard to our investigations referred to in paragraph 3 above.

We agree with them that a line to Bermuda is not, in the present stage of aircraft development, a practical proposition, except by airship.

We feel, however, that the practical way to secure that Jamaica shall in due course become, as is desired, the junction of important air services between North, Central and South America, is for the Colony to be prepared in due course to offer the inducement of the essential ground organisation (landing, housing, wireless and meteorological facilities).

(c) WINDWARD AND LEEWARD ISLANDS.

The Governor of the Windward Islands has represented the urgent need of a service to establish passenger communication between Trinidad and the Islands of the Windward and Leeward Groups in consequence of the withdrawal of the Canadian Royal Mail Steamship Company's service.

There would be no difficulty in running the service from the operational standpoint. From the information before us, however, our remarks made above in paragraph 3, as to the probable lack of sufficient traffic, apply with particular force to the Windward and Leeward Islands. Without a considerable subsidy we do not consider that the service suggested could be self-supporting.

The Governor of the Leeward Islands has suggested that an up-to-date seaplane might be presented to the Colony for experimental purposes. Experimental flights without adequate provision for maintenance and ground organisation are apt, however, to lead to erroneous conclusions being formed, both as regards the costs and the difficulties of operation, which might actually be prejudicial to the eventual establishment of a regular service. Practical demonstration of aviation might certainly be of considerable value, but it must be realised that, if such action were taken, it would be necessary to budget for a considerable sum to assure the efficient conduct of the experiment. We are informed that a sum of £11,000 has been guaranteed by those interested in the operation of a similar experiment in Africa between Khartoum and Kisumu, a distance of 1,200 miles.

(d) TRINIDAD.

This Colony possesses the population, geographical position and commercial potentialities which in our opinion make it well suited to be the focal point of air services radiating to British Guiana, to Venezuela and to the Lesser Antilles. From the meteorological

aspect the prevailing conditions are generally favourable for air operations on these routes, of which the first two lie, moreover, outside the main belt of tropical cyclones.

We also suggest that in this island scientific investigation might show that aircraft could be usefully employed to "dust" with insecticides the fields of sugar-canes which are, we understand, being seriously affected by the frog hopper pest (*Monecphora Saccharina*). The advantages of the use of aeroplanes in agriculture are already recognised in the United States of America, where the "dusting" of cotton crops is successfully carried out by this means on a considerable scale as a protection against the boll-weevil.

(i) *Trinidad—British Guiana Route.*

Existing steamer communication between Trinidad and British Guiana is far from satisfactory, a condition of affairs which is reflected in the mail service with the latter Colony.

With few exceptions, mails from the United Kingdom for British Guiana are sent either via Trinidad by direct steamer or to Trinidad to await an opportunity to be forwarded. The sailings, both on the trans-Atlantic section and on the Trinidad—British Guiana section, are irregular, and, although in some cases mails transhipped at Trinidad may secure a close onward connection, they may, on the other hand, have to wait there for as long as a week. The time taken in transit from Trinidad to British Guiana is about 36 hours, so that mails sometimes fail to reach the latter Colony until more than a week after arrival at Trinidad, which is only 360 miles distant. Similarly in the reverse direction, mails from British Guiana may lie at Trinidad several days, waiting an opportunity to be forwarded to this country.

We understand that local proposals are at present in contemplation for the improvement of communications between British Guiana and Trinidad by the inauguration of a regular subsidised steamship service.

In our opinion, an air service would probably meet the requirements of both mails and first class passengers at considerably less cost to the Colonies concerned than a steamship service. We are satisfied that with the employment of a three-engined seaplane or flying boat there would be no practical difficulties in operating over this route which could be flown in about four hours.

(ii) *Trinidad—Curaçao—Maracaibo Route.*

Favourable opportunities appear to exist for the establishment of a seaplane service along the north coast of Venezuela to connect the rich oil districts at Maracaibo and Curaçao with Trinidad. There has been a considerable increase in traffic on this route recently, owing to the oil developments in Venezuela. In our opinion such a service would form a practical extension of the route from British Guiana to Trinidad on which at first traffic would probably be insufficient to warrant daily operation. By opening up rapid

communication with Trinidad and the main ocean steamship routes and thus effecting a saving of several days for passengers and mails, this service should possess good prospects of commercial success. We understand that certain oil companies have expressed their willingness to take a financial interest in any British air transport company operating this route and to give certain assurances as to the utilisation of the air service.

(iii) *Trinidad—Barbados Route.*

There is considerable traffic between Trinidad and Barbados, and, although there is regular steamship communication between the Islands, the advantages of a weekly air service which would take less than $2\frac{1}{2}$ hours for the journey, might attract full loads, if the rates charged were reasonable. Such a service could readily be made to fit in as an extension of a line from British Guiana to Trinidad.

(e) *BRITISH GUIANA.*

Apart from the opportunities, referred to above, for a service to connect British Guiana with Trinidad, we consider that the internal conditions prevailing in British Guiana are peculiarly favourable for the establishment of an air service from Georgetown into the interior.

To reach the Mazaruni diamond area involves a journey of 62 miles by sea from Georgetown to Bartica and 185 miles up river in open boats. The time taken on the river journey varies from 16 to 22 days, according to the season, and to this must be added the delay, which varies from two or three days to a week or more, in waiting at Bartica for a passage. The total average time to reach the diamond area from Georgetown may, therefore, be put at from three to four weeks.

The whole population of the Mazaruni district subsists at present on tinned and other foodstuffs brought up from Georgetown, of which the stocks ordinarily on hand would not suffice for more than about ten days. As the nearest point for replenishment is Bartica, a fortnight's journey away, any prolonged interruption by floods of the normal upward traffic is always a source of anxiety.

The cost of freight is 130 dollars or more per ton and there is a risk of serious damage or total loss from exposure or accident in the rapids and at the various portages.

According to the Report of the Lands and Mines Department for the year 1925, there were in that period 13 boat accidents on the Mazaruni, resulting in the loss of 34 lives.

During that year 17,378 persons passed Kamakusa, the centre of the diamond district, on the up journey and 17,916 on the down journey, whilst 912 persons branched off up the Puruni river and 694 travelled down the Puruni to Bartica, making a total of 36,900 passengers in all who journeyed above Bartica.

The value of the total quantity of diamonds produced in the Mazaruni and Puruni districts in 1925 exceeded £700,000.

The difficult conditions of transport, involving so much unproductive expenditure of capital and labour, point to the need for the introduction of a quicker and less hazardous means of communication between the diamond fields and the coast.

The journey by air from Georgetown to Kamakusa would only take about $1\frac{1}{2}$ hours and the advantages of an air service are in these circumstances self evident. It would also possess the further advantage, not shared by a railway, that its itinerary could readily be varied to meet the frequent changes in location of the diamond diggings.

A preliminary survey of the River Mazaruni has already, as mentioned earlier, been carried out with a view to an air service, and suitable operating sites have been selected. In some cases minor damming and blasting work would be necessary before they could be used.

Besides this region, there is also a mineral-bearing area on the Potaro river, to and from which, according to the report mentioned above, 8,861 persons travelled during 1925. Although difficulties of transport similar to those on the Mazaruni are not met with in this case, there would, apart from the general suitability of aircraft for the transport of valuable merchandise, be many advantages in speeding up communication between this area and Georgetown. An air service could cater for this traffic as well as for tourist traffic to the Kaieteur Falls on the Potaro River, which by this means could be reached from Georgetown in $1\frac{1}{2}$ hours. Under present conditions an expedition to these Falls and back occupies at least nine days, which few tourists are able to afford. Consequently, Kaieteur, which is five times as high as Niagara, is comparatively rarely visited.

There is also in British Guiana extensive scope for the employment of aircraft in survey and forestry work. The Commission, appointed to enquire into the question of a railway to the Mazaruni, reported that the knowledge of the mineral, timber and other natural resources of the Colony was limited to certain areas adjacent to the main waterways below the rapids and to the diamond and gold mining areas above the rapids. Further surveys are, we understand, now in progress and the employment of aircraft would enable these operations to be carried out and extended with a minimum of time and effort.

We appreciate that there might be difficulties in adjusting long established local arrangements to meet the new conditions which would arise from the establishment of this rapid form of transport at present novel to the Colony and in immediately absorbing in more productive employment those engaged in undertakings which are part of, or dependent on, the existing primitive means of communication. But we do not consider that temporary economic difficulties of this nature should be allowed to stand in the way of developments which, we are convinced, will make for increased prosperity.

5. POSSIBLE SERVICES.

To be commercially successful an air service must be capable of intensive operation, the machine in use must be of an economical type, and both operating and overhead charges must be reduced to a minimum.

From our foregoing review of the existing opportunities in the various Colonies we have reached the conclusion that, as regards the first condition, the only two points from which remunerative services are at present likely to be built up are Port of Spain (Trinidad) and Georgetown (British Guiana), and that the following services from these places offer the greatest justification for immediate establishment :—

- (a) Georgetown—Kamakusa.
- (b) Georgetown—Kaieteur Falls.
- (c) Georgetown—Port of Spain—Barbados.
- (d) Port of Spain—Curaçao—Maracaibo.

We consider that, to enable the operating aircraft to be employed to their full extent and to enable overhead charges to be reduced to a minimum, these services should be combined into one scheme with a common base.

6. SUGGESTED SCHEME.

We have accordingly prepared, and attach hereto as Appendix A, a scheme showing the form which these services might take.

We contemplate that Georgetown would be the base of operations and that the headquarters of the Company, its workshops and stores would be located there.

The capital proposed is £173,000 of which sum £40,000 is for working capital. The annual expenditure, including standing charges and running costs, has been estimated at £128,000.

These figures cover a liberal provision for contingencies under all heads. They include the cost of constructing and maintaining a hangar and slipway at Georgetown, as well as floating platforms and moorings at all points of call. It has been assumed that the Government of British Guiana would provide the site for the hangar and slipway free of cost to the operating company.

We consider that the provision of the necessary wireless and meteorological services should devolve on the local Governments. So far as our information goes, the number of wireless stations already existing at places on or near the proposed routes is, except in the case of Kaieteur Falls in British Guiana, adequate to meet the requirements of the Air Service. A list of these wireless stations is given in Appendix B.

As regards meteorology, stations, maintained chiefly for climatological purposes, also exist at most of the main points on the routes and could be used as weather reporting stations in connection with the air service. It would, however, be necessary to supplement these by additional stations for observations of the upper air at Port

of Spain (Trinidad), Bridgetown (Barbados) and Georgetown (British Guiana) and also to establish a forecast service at the last named town. Details of the meteorological arrangements suggested for the air service and estimates of their cost are shown in Appendix C.

The scheme contemplates that three aircraft, of the type described in Appendix A, would be provided, two for the maintenance of the service and one in reserve. The latter would be available for special work.

With full loads and 100 per cent. efficiency in operation the total cost per passenger-mile works out at $5\frac{1}{2}d.$ and the cost per ton-mile at $5s. 1\frac{1}{4}d.$ These costs would be doubled with 50 per cent. loads.

The service comprises five sections :—

(a) GEORGETOWN—KAMAKUSA.

The opportunities on this section appear so favourable that provision has been made for a service in each direction every weekday. This would give a maximum carrying capacity of 5,616 passengers and 500 tons of goods. This number of passengers represents roughly 15 per cent. of the total passenger traffic on the Mazaruni River in 1925, according to the Report mentioned earlier.

In view of the hazardous nature of the journey by river and through the bush under existing conditions, it is not unreasonable to suppose that the short trip of $1\frac{1}{2}$ hours by air would attract sufficient traffic to make up full loads. On the return journey the machines could be used, *inter alia*, for the conveyance of packets of diamonds, a form of freight which would bear a high rate in consequence of reduced insurance charges resulting from this means of transport.

An indication of the possible passenger and freight rates can be obtained from a consideration of the following estimated costs, spread over a full load and a half load respectively :—

		Full Load.		Half Load.	
		£	s. d.	£	s. d.
Cost per passenger	.. ..	3	5 0	6	10 0
Cost per lb. of goods	.. ..	0	0 4	0	0 8

(b) GEORGETOWN—KAIETEUR FALLS.

Three journeys a week in each direction would be made, each taking about $1\frac{1}{2}$ hours. This service is intended to cater for traffic both to the Kaieteur Falls and to the mineral-bearing areas in the Potaro region. 2,808 passengers and 250 tons of goods could be carried per annum. As regards passengers, this represents about 30 per cent. of the total traffic to the district in 1925. As explained earlier, this route appears to offer promising prospects for tourist traffic.

The costs of a single journey would be :—

		Full Load.		Half Load.	
		£	s. d.	£	s. d.
Cost per passenger	.. ..	3	9 0	6	18 0
Cost per lb. of goods	.. ..	0	0 4	0	0 8

(c) GEORGETOWN—PORT OF SPAIN.

Two journeys per week in each direction, of about 4 hours' duration each, are proposed. The amount of traffic on the route is ample to provide full loads, there being, in addition to passengers, a considerable amount of mail traffic to and from the United Kingdom, a certain proportion of which would no doubt be available for carriage by air. For purposes of comparison, however, the costs for a single journey, spread over a full load and a half load respectively, may be stated :—

		<i>Full Load.</i>		<i>Half Load.</i>	
		£	s. d.	£	s. d.
Cost per passenger	.. ..	8	5 0	16	10 0
Cost per lb. of goods	.. ..	0	0 10	0	1 8

(d) PORT OF SPAIN—BARBADOS.

A service from Port of Spain to Bridgetown and back on one day in each week is suggested. The single journey would last about 2½ hours.

		<i>Full Load.</i>		<i>Half Load.</i>	
		£	s. d.	£	s. d.
Cost per passenger	.. ..	5	1 0	10	2 0
Cost per lb. of goods	.. ..	0	0 6	0	1 0

(e) PORT OF SPAIN—LA GUAIRA—CURAÇAO—MARACAIBO.

One journey per week in each direction, taking about 9 hours.

	<i>Full Load.</i>			<i>Half Load.</i>		
	<i>Cost per</i>		<i>Cost per</i>	<i>Cost per</i>		<i>Cost per</i>
	<i>passenger.</i>		<i>lb.</i>	<i>passenger.</i>		<i>lb.</i>
	£	s. d.	s. d.	£	s. d.	s. d.
Port of Spain—La Guaira	8	12 0	0 10½	17	4 0	1 8½
La Guaira—Curaçao ..	3	18 0	0 4½	7	16 0	0 9½
Curaçao—Maracaibo ..	4	16 0	0 5½	9	12 0	0 11½

7. FINANCIAL ASSISTANCE.

The possibilities of the air services, described in paragraph 6, are so far reaching, particularly in the case of the suggested internal services in British Guiana, that we have every hope as to their ultimate commercial success.

For a period, however, until the utility of the service has been demonstrated by systematic operation it cannot be expected that remunerative loads will be secured. But, assuming that only half loads are carried, the costs per journey for the various sections, as shown above, are so high that traffic by air would be unlikely to develop on account of the high scale of fares which would have to be charged.

To make it possible for the operating company to charge from the beginning, fares which would bear comparison with present first class rates, bearing in mind the very considerable saving in time by

air, we consider that financial assistance will be required until a sufficient volume of traffic has been attracted to the air service by its proved reliability and value.

* * * * *

8. CANADA AND THE WEST INDIES.

In view of the recent development of trade between Canada and the West Indies, we desire, although the subject is outside our terms of reference, to draw attention to the advantages which would accrue from the establishment of an air service between these two parts of the Empire.

9. SUMMARY.

Our conclusions and recommendations may be briefly summarised as follows :—

- (i) A scheme for an air service covering the whole area of the West Indies is not yet commercially practicable.
- (ii) The British centres which offer at present the most favourable commercial prospects for regular air services are :—British Guiana (Georgetown) and Trinidad (Port of Spain).
- (iii) From these centres the following routes present opportunities for remunerative air services, if combined into one scheme with a common base (*vide* Appendix A).
 - (a) Georgetown—Kamakusa.
 - (b) Georgetown—Kaieteur Falls.
 - (c) Georgetown—Port of Spain.
 - (d) Port of Spain—Barbados.
 - (e) Port of Spain—La Guaira—Curaçao—Maracaibo.
- (iv) The local Governments should provide the essential wireless and meteorological facilities (*vide* Appendices B and C) and also, in the case of British Guiana, a site at Georgetown for a slipway and hangar.
- (v) * * * * *
- (vi) Opportunities also exist in the West Indies generally for the advantageous employment of aircraft on survey work and to facilitate administration. In particular in the Bahamas they could be used for work in connection with the administration of the lighthouse service.

In Trinidad investigation should be made of the possibility of employing aircraft to “dust” the sugar cane areas for the purpose of eradicating insect pests.
- (vii) There are prospects of future development of tourist traffic on an increasing scale in the West Indies. This traffic would prove a source of considerable additional revenue to any air operations which might be established and could cater for it, but, for obvious reasons, cognisance cannot be taken of it in framing estimates for regular services.

10. CONCLUSION.

We have had the assistance at several of our meetings of Mr. D. G. H. Gordon, O.B.E., Honorary Secretary of the West Indian Aviation Committee, a body which is closely watching all questions affecting civil aviation in the West Indies; we have also had the assistance of Major H. Hemming, A.F.C., whose personal experience of aviation in the West Indies has been readily put at the service of the Committee.

We desire to express our thanks to these gentlemen and also to Mr. Burkett, of whose ability as Secretary we have formed a very high opinion and whose services in that capacity have been invaluable to the Committee.

(Signed) W. S. BRANCKER (*Chairman*).

ALGERNON ASPINALL.

F. G. L. BERTRAM.

IVAN DAVSON.

IVO EDWARDS

J. McEWAN MARTIN.

F. H. WILLIAMSON.

R. A. WISEMAN.

W. W. BURKETT (*Secretary*).

25th October, 1926.

APPENDIX A.

PROPOSED AIR SERVICES IN THE WEST INDIES.

1. The following scheme provides for :—

- (a) Six services a week in each direction between Georgetown and Kamakusa.
- (b) Three services a week in each direction between Georgetown and Kaieteur Falls.
- (c) Two services a week in each direction between Georgetown and Port of Spain.
- (d) A weekly service in each direction between Port of Spain and Barbados.
- (e) A weekly service in each direction between Port of Spain and Maracaibo, calling at La Guaira and Curaçao.

2. The services are based on Georgetown, where the headquarters of the operating company, all workshops, etc., would be located.

3. The type of aircraft proposed to be employed is a monoplane of all-metal construction, fitted with two all-metal floats and equipped with three air-cooled radial engines of 420 horse-power each. A machine of this type is at present in the design stage.

The estimates have been based on a seating capacity for 18 passengers, or a paying load capacity of 3,600 lb., and a cruising speed of 100 miles per hour. The designer considers, however, that a considerably higher performance in respect of carrying capacity and speed will be attained with this type of aircraft. Any improvement in performance would effect a reduction both in the estimated costs and charges of the proposed services.

4. The employment of three aircraft is contemplated, two being used daily on the services, while the third is held in reserve.

5. This machine in reserve could be used for supplementary or special flights, as required.

TIME-TABLE.

<i>Section (a). Georgetown—Kamakusa. (142 miles.)</i>			
Machine A	Daily service except Sun- 0800 Dep. | Georgetown 0930 Arr. | Kamakusa	↑ Arr. 1130 ↓ Dep. 1000	Daily service except Sun- day.
<i>Section (b). Georgetown—Kaieteur Falls. (151 miles.)</i>			
Machine A	Monday, 1330 Dep. | Georgetown Wednesday 1505 Arr. | Kaieteur Falls.	↑ Arr. 1710 ↓ Dep. 1535	Monday, Wednesday and Friday.
<i>Section (c). Georgetown—Port of Spain. (360 miles.)</i>			
Machine B	Tuesday and Saturday. 0800 Dep. | Georgetown 1140 Arr. | Port of Spain.	↑ Arr. 1140 ↓ Dep. 0800	Monday and Friday.
<i>Section (d). Port of Spain—Barbados. (220 miles.)</i>			
Machine B	Tuesday .. 1230 Dep. | Port of Spain 1445 Arr. | Barbados	↑ Arr. 1730 ↓ Dep. 1515	Tuesday.
<i>Section (e). Port of Spain—Maracaibo. (756 miles.)</i>			
Machine B	Wednesday .. 0830 Dep. | Port of Spain	↑ Arr. 1720	Thursday.
	1215 Arr. } La Guaira 1300 Dep. } 1445 Arr. } Curaçao 1510 Dep. }	{ Dep. 1335 { Arr. 1245 { Dep. 1100 { Arr. 1040	
	↓ 1720 Arr. Maracaibo	Dep. 0830	

GROUND ORGANISATION.

			<i>Capital Charges.</i>				£	£
<i>British Guiana—</i>								
Georgetown	..	..	1 hangar and workshop	..	..	8,750		
			1 slipway	..	..	2,500		
			3 moorings at £50	..	..	150		
			1 floating platform	..	..	1,000		
Kamakusa	..	..	1 mooring	..	..	150		
			1 floating platform	..	..	1,000		
Kaieteur Falls	..	..	1 mooring	..	..	150		
			1 floating platform	..	..	1,000		
Blasting and clearing rocks		..	..	..	..	1,000		
								15,700
<i>Trinidad</i>	..	..	1 mooring	..	..	150		
			1 floating platform	..	..	1,000		
								1,150
<i>Barbados</i>	..	..	1 mooring	..	..	150		
			1 floating platform	..	..	1,000		
								1,150
<i>Foreign Territory—</i>								
La Guaira	..	..	1 mooring	..	..	150		
			1 floating platform	..	..	1,000		
Maracaibo	..	..	1 mooring	..	..	150		
			1 floating platform	..	..	1,000		
Curaçao	..	..	1 mooring	..	..	150		
			1 floating platform	..	..	1,000		
								3,450
								£21,450

				<i>Annual Charges.</i>
British Guiana—Maintenance at 5 per cent.				785
Trinidad—Maintenance at 5 per cent.				58
Barbados—Maintenance at 5 per cent.				58
Foreign territory—Maintenance at 5 per cent.				172
				£1,073

SALARIES.

Grade.				Number.	Salary.	Total Salary.
					£	£
General Manager	..	..	..	1	1,500	1,500
Assistant Manager	..	..	..	1	750	750
Secretary	..	..	..	1	500	500
Wireless personnel	..	..	..	1	400	400
Chief Engineer	..	..	..	1	750	750
Ground Engineer	..	..	..	4	500	2,000
Mechanics	..	..	..	14	400	5,600
„ (Native)	..	..	..	21	100	2,100
Labourers	..	..	..	21	50	1,050
Clerks	..	..	..	2	250	500
„ (Native)	..	..	..	15	75	1,125
Pilots	..	..	..	4	500	2,000
Total				8	}	£18,275
{ 1st Class				21		
{ 2nd Class				57		
{ Native						

DATA.

Miles per week—Monday ..	946	Thursday	1,040	} Total ..	6,002
Tuesday ..	1,084	Friday ..	946		
Wednesday ..	1,342	Saturday	644		

Miles per annum on service	312,104
Hours per annum on service (per time-table)	3,224
Machine hours (service hours + 5 per cent. dead flying)	3,385
Engine hours (service hours \times 3 + 20 per cent. dead flying)	12,186
Petrol at 25 gallons per hour	304,650
Petrol plus wastage and evaporation at 10 per cent.	335,115
Oil at 1.75 gallons per hour	21,325
Machines on service	2
Machines in reserve	1
Machines—Total	3
Engines in machines	9
Engines—Spare	12
Engines—Total	21

CAPITAL EXPENDITURE.

Machines with engines, 3 at £18,050	£ 54,150
Spare engines, 12 at £1,350	16,200
Ground organisation	21,450
Equipment of stations	9,000
Wireless equipment	1,000
Aeroplane and engine spares	14,000
Packing, freight and insurance	11,000
Motor launches, 5 at £500	2,500
Motor transport	1,500
Fares	2,200
Working capital	40,000

£173,000

ANNUAL EXPENDITURE.

<i>Standing Charges.</i>		£	£
Insurance—Aeroplanes complete at 10 per cent.	5,415		
Spare engines at 2½ per cent.	405		
Equipment at 1 per cent.	100		
Motor boats and transport at 6 per cent.	240		
Ground organisation at 1 per cent.	215		
Personnel	750		
			7,125
Depreciation—Equipment at 15 per cent.	1,950		
Motor boats and transport at 15 per cent.	600		
Ground organisation at 10 per cent.	2,145		
			4,695
Obsolescence—Aircraft and engines at 20 per cent.	14,070		
			14,070
Maintenance—Ground organisation	1,073		
			1,073
Salaries and wages	18,275		
			18,275
Rents, rates, taxes and lighting	2,000		
Housing and landing fees	1,000		
Advertisement	2,000		
Stationery and office charges	1,000		
Cartage and travelling	2,000		
Directors' fees, legal expenses, etc.	1,500		
Sundries, trade expenses	262		
			9,762

£55,000

<i>Running Charges.</i>							£	£
Petrol at 2s. per gallon	..	..	..	..	..	..	33,511	
Oil at 7s. 6d. per gallon	..	..	..	..	..	..	7,997	
								41,508
Flying pay—Pilots at 10s. per hour	..	..	..	..	..	..	1,693	
Mechanics at 2s. 6d. per hour	..	..	..	..	..	..	423	
								2,116
Maintenance—Aircraft less labour 40s. per hour	..	..	..	..	..	..	6,770	
Engines less labour 30s. per hour	..	..	..	..	..	..	18,279	
Wireless, 5s. per hour	..	..	..	..	..	..	846	
Maintenance and running motor boats at 2s. per mile.							2,500	
Maintenance and running motor transport at 1s. per mile.							250	
								28,645
Sundries	..	..	..	..	..	..	731	
								731
								£73,000
Brought down	..	..	..	..	..	..		55,000
								£128,000

ANALYSIS.

Miles per annum on service	..	..	..	..	..	..	312,104
Capital expenditure	..	..	..	..	..	..	£173,000
Annual expenditure	..	..	..	..	..	..	£128,000
Cost per mile flown (approx.)	..	..	..	..	..	..	8s. 2½d.
Cost per ton-mile (approx.)	..	..	..	..	..	..	5s. 1¼d.
Cost per passenger-mile (approx.)	..	..	..	..	..	..	5½d.

Total Carrying Capacity per annum with 100 per cent. Efficiency.

	<i>Passengers or Goods.</i>	
Between Georgetown and Kamakusa	..	11,232
Between Georgetown and Kaieteur Falls	..	5,616
Between Georgetown and Port of Spain	..	3,744
Between Port of Spain and Barbados	..	1,872
Between Port of Spain and La Guaira	..	1,872
Between La Guaira and Curaçao	..	1,872
Between Curaçao and Maracaibo	..	1,872
		1,003 tons.

A mixed load of passengers and goods could be carried, each passenger being allowed for at the equivalent of 200 lb. weight. In place of the figures shown in the above table, it would be equally correct to show the total load per annum as half the given number of passengers *plus* half the given tonnage of goods.

APPENDIX "B."

LIST OF WIRELESS STATIONS IN THE VICINITY OF THE PROPOSED AIR SERVICES IN THE WEST INDIES.

According to various authentic publications, the following wireless stations exist at the stations shown. These stations work on various wavelengths and it would therefore be necessary for arrangements to be made with the controlling authorities for a suitable uniform wavelength to be adopted for work with aircraft. A wavelength of 600 metres appears to be generally suitable for adoption for this purpose and would have the advantage of enabling shipping and aircraft to be controlled by the same ground stations.

Country.	Place.	Geographical position.	Call Sign.	Range in Miles.	Type of apparatus.	Wavelength (metres) Normal waves in italics.	Hours of service.
British West Indies.	<i>Barbados.</i> Barbados Radio	13° 05' 45" N. 59° 37' 23" W.	VPO	250	R.C.C. valve, C.W. and I.C.W.	600 1,050	7-19 (time, 60° W. of Greenwich meridian).
	<i>Trinidad and Tobago.</i> North Post ..	10° 44' 36" N. 61° 33' 45" W.	VPL	500	Marconi, 300 cycle spark.	450, 600, 800 1,800	Continuous service.
	Port of Spain	10° 40' 00" N. 61° 30' 00" W.	GOR	1,000	Marconi valve, continuous wave.	2,275, 2,400	7-18 (time, 60° W. of Greenwich meridian).
	Tobago ..	11° 12' 00" N. 60° 40' 00" W.	VPM	350	Marconi and Lodge-Muirhead 400 cycle.	600, 800	8-11, 14-17 (time, 60° W. of Greenwich meridian).
	<i>Windward Islands.</i> Carriacou ..	12° 09' 00" N. 61° 28' 00" W.	GOE	25	R.C.C., 650 cycle spark.	430	8-12, 14-18. Sundays 8.30-11.30 (time, 60° W. of Greenwich meridian).
	Grenada Radio	12° 03' 25" N. 61° 44' 40" W.	GZG	250	R.C.C. valve, C.W. and I.C.W.	600 900	7-19 (time, 60° W. of Greenwich meridian).

APPENDIX "B"—continued.

Country.	Place.	Geographical position.	Call Sign.	Range in Miles.	Type of apparatus.	Wavelength (metres) Normal waves in italics.	Hours of service.
British West Indies—contd.	<i>Windward Islands</i> —contd. St. Lucia Radio	14° 00' 11" N. 61° 00' 13" W.	VQH	250	R.C.C. valve, C.W. and I.C.W.	600, 900, 2,400	7-19 (time, 60° W. of Greenwich meridian).
	St. Vincent Radio.	13° 08' 36" N. 61° 13' 53" W.	GZS	250	R.C.C. valve, C.W. and I.C.W.	600, 900	—
	Georgetown (Demerara).	6° 49' 12" N. 58° 08' 48" W.	BZL	500	Marconi 600 cycle spark and continuous wave arc.	600, 1,400, 1,800	Continuous.
*British Guiana.	Georgetown (Demerara) D.F.	6° 49' 12" N. 58° 08' 48" W.	BZL	—	—	600, 800	Continuous.
	Mabaruma ..	8° 13' 00" N. 59° 45' 00" W.	VPA	200	Marconi spark ..	600, 900	10-15-12-45 } Mon., Tues., 14-15, 16-18 } Thurs., Fri., 20-20-45. } Sat. 10-15-12-45 } Sunday. No fixed periods on Wednesdays. 8-10, 14-16 local time.
	Coronie ..	5° 52' 49" N. 56° 22' 53" W.	PJQ	60	Telefunken ..	400, 600	
Dutch Guiana.	Nickerie ..	5° 57' 10" N. 57° 02' 43" W.	PJR	110	N.S.F., 1,000 cycle spark.	300, 450, 600, 800	8-10, 14-16 local time.
	Paramaribo Radio.	5° 49' 48" N. 55° 12' 13" W.	PJN	500	Telefunken, spark	600, 800 1,050, 1,200, 1,600, 1,800	4-24 local time.

Dutch West Indies.	Aruba ..	12° 31' 05" N. 70° 02' 01" W.	PJA	110	N.S.F., 1,000 cycle spark.	300, 450, 600, 800	8-20, local time. 8-12 } holidays, local time. 14-18 }
	Bonaire	12° 09' 20" N. 68° 16' 15" W.	PJB	110	N.S.F., 1,000 cycle spark.	300, 450, 600, 800	9-12, 14-17, local time. 11-45-12-15 holidays, local time.
	Curaçao	12° 06' 19" N. 68° 56' 55" W.	PJC	400	Telefunken, spark	300, 600, 1,800	Continuous.
	Fort de France	14° 35' 50" N. 61° 04' 00" W.	HZH	800	French Navy, spark	600, 800, 1,000, 1,280, 1,600, 1,800	6-21, local time.
Venezuela	Barquisimeta	10° 03' 57" N. 69° 18' 45" W.	AYH	400	Federal, Arc	1,650, 2,400, 3,200, 3,600, 4,400	8-12, 14-18, local time.
	Caracas	10° 30' 24" N. 66° 55' 45" W.	AYA	300	C.W. and I.C.W. ..	300, 600, 825, 925, 1,125, 1,450, 1,650, 1,950,	8-12, 14-18, local time.
	La Guaira	10° 36' 49" N. 66° 56' 45" W.	AYG	400	Wireless Improvement, 500 cycle spark.	300, 600, 1,200, 1,650, 2,400, 3,200	6-22, local time.
	Maracay	10° 15' 37" N. 67° 36' 45" W.	AYB	300	C.W. and I.C.W. ..	600, 825, 925, 1,125, 1,450, 1,650, 1,950	8-12, 14-18, local time.
	Maracaybo	10° 38' 32" N. 71° 36' 30" W.	AYF	300	Westinghouse, 500 cycle spark.	300, 600, 1,200, 1,650, 2,400, 3,200	6-22, local time.
	Porlamar, Isla de Margarita.	10° 56' 51" N. 63° 51' 13" W.	AYE	200	Marconi, 500 cycle spark.	300, 600, 900, 1,650	8-12, 14-18, local time.
	Puerto Cabello	10° 29' 42" N. 68° 00' 30" W.	AYC	300	C.W. and I.C.W. ..	300, 600, 825, 925, 1,125, 1,450, 1,650, 1,950	8-12, 14-18, local time.

* In the case of British Guiana it is understood that W/T Stations also exist at Kamakusa, Mackenzie, Apoteri and Enachu, but details of these stations are not available.

APPENDIX C.

SUGGESTED METEOROLOGICAL ARRANGEMENTS FOR THE PROPOSED WEST INDIAN AIR SERVICES.

Meteorological stations, maintained chiefly for climatological purposes, exist at the following places :—

				<i>Controlling Authority.</i>
British Guiana	..	Georgetown	..	Director of Science and Agriculture, Georgetown.
		Mazaruni.		
		Suddie.		
		New Amsterdam.		
		Essequibo.		
Trinidad	..	Port of Spain	..	Director of Agriculture, Port of Spain.
Barbados	..	Bridgetown	..	Department of Agriculture, Bridge- town.
Venezuela..	..	Caracas	..	Servicio Meteorologico, Caracas.
		Merida.		
Curaçao	..	St. Eustatus*	..	Meteorological Institute, De Bilt.
Dutch Guiana	..	Paramaribo*	..	Meteorological Institute, De Bilt.

The stations marked * make observations of the direction and speed of the wind at different heights, as well as surface observations.

The above stations could be used as reporting stations in connection with the projected air services. They would require to be supplemented, however, by additional "upper-wind" stations at Port of Spain, Georgetown and Bridgetown. An adequate network of such stations is desirable as, although this area lies in the Trade wind belt, daily and seasonal variations of wind occur as well as local variations due to the passage of cyclones.

A forecast service would also be required. Although the main coastal route is outside the southern limit of the cyclone belt, disturbances may originate near the route. The northern section of the routes is definitely in the tropical cyclonic belt. Further parts of the route experience heavy rains at certain seasons.

The natural centre for a forecast service would be Trinidad. As, however, the scheme in contemplation provides for the more frequent services in British Guiana, Georgetown would probably be the best centre in the first instance, especially as the operational headquarters are to be stationed there.

It is difficult to give a detailed estimate of the cost of the meteorological service as so many different factors are involved. There would probably be, for example, the cost of telegraphing daily reports for forecast purposes from neighbouring areas, such as the Windward Islands, Jamaica and Porto Rico, as well as certain payments to observers at existing stations on the proposed routes. The *additional* requirements would be as follow :—

"Upper Wind" Stations.

(a) *Equipment.*

						<i>Initial Cost.</i>	<i>Annual Maintenance.</i>
Provision of pilot balloon equipment at—						£	£
Georgetown	..	..	..	..	..	60	35
Port of Spain	..	..	..	..	..	60	35
Bridgetown	..	..	..	..	..	60	35
Total						£180	£105

(b) *Staff.*

Two clerk-assistants, recruited locally, would be required at each station.

Forecast Service at Georgetown.

<i>Staff.</i>	<i>Annual Salary. £</i>
1 assistant superintendent	785
1 senior professional assistant	610
	<hr/>
	£1,395

The gradings of the staff of the Meteorological Office, Air Ministry, have been adopted for this estimate; the salaries shown are appropriate to these gradings and include Colonial allowances.

The clerk-assistants required for the "upper wind" Station would be available to assist also in the forecast work.

APPENDIX D.

Report of the Committee appointed to consider the Question of the Development of Civil Aviation in the West Indies in so far as it affects Jamaica.

1. In examining the relationship of Jamaica to the various West Indian Islands from the point of view of the exchange of commodities, it was found, as might be expected of Islands dealing in similar products, that the exchange was small and insignificant in value, except in the case of coffee exported to Cuba, oil imported from the Dutch West Indies, and asphalt imported from Trinidad.

2. A list* was prepared showing the quantity and value of the trade taking place between the Islands in 1925, and a second list* giving some idea of the normal quantity of mail passing and of the routes traversed by such mail.

3. The Committee after a careful study of the lists mentioned in paragraph 2, bearing in mind that the oil and asphalt interests are controlled by large trusts and in view of the extensive cable communication between the Islands, felt that, considered from the point of view of trade alone, both at present and for some time to come, no gain commensurate with the cost would accrue from the faster mail communication which would result from the creation of an airplane or hydroplane service.

4. Passing from the opinion expressed in paragraph 3 above, the Committee proceeded to consider the prospect of such an air service to the United States or to Canada. Upon studying the map two routes appeared worthy of consideration.

(a) From Jamaica to Bermuda, where the service from the Leeward and Windward Islands might join, and on to Halifax in Nova Scotia.

(b) Jamaica to Nassau (whether calling in at Cuba or going direct) and on to Jacksonville, an important railway centre in Florida.

At Nassau the service could connect with the Leeward and Windward Islands if stations are made in San Domingo or Porto Rico. It is assumed that there will be no difficulty in securing rights of passage over Cuba, Haiti, etc.

5. The Committee, with a very imperfect knowledge of the subject, believe that for flights to Bermuda, nearly 1,000 miles in length, special and expensive machines will be required with aviators of more than average skill.

Considering also the small size of Bermuda and the stormy and foggy character of the region northwards to Nova Scotia, the danger of getting lost would be so great that the Committee decided to explore route (a) no further.

* Not reproduced.

It was felt also to be useless to consider a special service to Honduras.

6. Considering route (b) the Committee considered this was a practical route from the point of view of safety, the route consisting of short flights in sub-tropical climates, the aviator being in sight of land almost the whole way.

Such a service would bring New York within two days' mail of Kingston instead of five, Canada three days, instead of six or seven, and England eight or nine days, instead of fifteen.

7. With respect to Jamaica's Dependencies, the Cayman Islands and Turks Island, the business of these Islands does not allow of seriously considering a special service, but if a service existed, then occasional flights could be made with ease and safety.

8. The Committee, reviewing the whole position as outlined in this report, feel that there are few businesses in Jamaica which will so benefit by the use of such a service, as to pay the extra stamps to gain a few days. For really urgent affairs the cable will still be used.

Doubtless the passenger traffic would increase and become considerable, as the safety of the venture becomes recognised, but an air service is an expensive organisation.

The Committee, therefore, with some reluctance, feel that for purposes of trade alone they cannot at present recommend such a service for Jamaica, though it is possible that this view might be modified by the consideration of a complete scheme prepared with estimates covering the whole area and with the expenses apportioned among the Islands in accordance with benefits received.

The Committee have not touched on airship communication as this, it is assumed, will be only used on main mail routes outside the scope of this report.

9. The Committee, although it is outside the scope of its reference, wish to record their opinion that Jamaica, possessing as it does an ideal hydroplane base in Kingston Harbour, and being centrally placed for the junction of the very important hydroplane services, which are sure to develop along the east and west coasts of South America, may assume a very important position in future, and all efforts should be made to secure her in this position, as against, say, the Gatun Lake at Panama.

A small map* is attached showing such hydroplane routes as the Committee have in mind.

(Signed) H. SIMMS (*Chairman*).
R. H. FLETCHER (*Member*).
W. ANTHONY BAKER (*Member*).
R. NEILSON (*Member*).

* Not reproduced.

